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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,401	04/19/2000	LARS ANDERSSON	P65317US0	3747

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JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

NGUYEN, HOAN C

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/529,401

Applicant(s)

ANDERSSON, LARS

Examiner

HOAN C. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____ .
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) 6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____ .
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . 6) ☐ Other: ____ .

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the combination of **all features** of a sheet-like supports (1), a layer of liquid thermochromic crystals (2), individual heatable elements (3) and cooling device s (4) and coating (5) covering the liquid thermochromic crystals in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. **All these features must include in one single combined figure.**

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the combination of features of a sheet-like supports (1), a layer of liquid thermochromic crystals (2),

individual heatable elements (3) with individual power supply and cooling means (4) and coating (5) covering the liquid thermochromic crystals. In another words, **how to combine the cooling device (4) in Fig. 3 into Figure 2.**

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Brian (US4142782) from applicant's IDS in view of Hattori (US5649766A).

In regard to claim 1, O'Brian teaches (Fig. 5) a display device comprising

- a sheet-like support (402) covered with a layer of liquid thermochromic crystals (410, 412, 414, these elements are modified from elements 18, 20, 22 and 24 in Fig. 1 in the same invention), which are separately tempered by individual power supply to individual heatable elements (406),
- the individual heatable elements being close to the liquid thermochromic crystals and being placed between the sheet-like support (402) and the liquid thermochromic crystals (410, 412, 414)),
- the crystals assuming different shades of color dependent on a given temperature (col. 4 line 68 to col. 5 line 3 or in abstract) so that the color of the crystals will form a certain pattern (Figs. 1 and 4) and a figure;

- cooling device as the result of ambient temperature changes (col. 3 lines 51-55)
which are controlled to cool down the crystals (2) to a certain temperature, which is lower than the temperature, at which the crystals are colored and

In regard to claim 2, O'Brian teaches (Fig. 5) a display device wherein the individual heatable elements consists of peltier elements (406 using as heat transfer elements), which are black (since peltier elements made of carbon particles in an organic binder) and are supplied by electricity with wires 420 in order to set their temperature (col. 4 lines 64-67).

In regard to claim 3, O'Brian teaches (Figs. 1-5, col. 3 lines 33-37) a display device wherein the liquid thermochromic crystals are painted on the peltier elements.

However, O'Brain fails to disclose a display device comprising

- the liquid thermochromic crystals being distributed over a complete layer without a specific pattern and a design of the figure being determined only by tempering the individual heatable elements located according to said design.
- the liquid thermochromic crystals being covered by a protecting coating.

Hattori teaches (Figs. 1 and 2) a display device comprising

- the liquid thermochromic crystals 6 being distributed over a complete layer without a specific pattern and a design of the figure as shown in Fig. 2 being

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determined only by tempering the individual heatable elements located according to said design for providing a visual image when changing temperature.

- the liquid thermochromic crystals being covered by a protecting coating (top layer 1) for protecting liquid thermochromic crystals from outside environment.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a display device as O'Brain disclosed with (a) the liquid thermochromic crystals 6 being distributed over a complete layer without a specific pattern and a design of the figure as shown in Fig. 2 being determined only by tempering the individual heatable elements located according to said design for providing a visual image when changing temperature; (b) the liquid thermochromic crystals being covered by a protecting coating (top layer 1) for protecting liquid thermochromic crystals from outside environment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brian (US4142782) in view of Hattori (US5649766A) as applied to claim 1 above in further view of Sheets (US6017594A).

Sheets teaches (col. 2 lines 39-54) a display device wherein a protecting coating of lacquer is a plain lacquer, which consists of an acryl base and a synthetic agent (which is conventional substance for binding the acryl polymeric base) for improving respond speed and preventing scratching effect to reduce appearance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify a display device as O'Brian disclosed with coating of lacquer being a plain lacquer, which consists of an acryl base and a synthetic agent (which is conventional substance for binding the acryl polymeric base) for improving respond speed and preventing scratching effect to reduce appearance.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Brian (US4142782) Hattori (US5649766A) as applied to claim 1 above in further view of Sheets (US6017594A) as applied to claim 4 above, and further in view of Jung et al. (US5283290A).

Jung et al. teach (in abstract and col. 8 lines 4-68) a display device having a protecting coating or lacquer with the mixing proportion of 10:1 between the acryl base and the synthetic agent, which is 10% of synthetic agent or components with polyester and 90% of the acryl base or carboxyl- and tertiary amino containing polyacrylate, for

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improving stress-resistance, elasticity, water or steam resistance and clear coat (col. 2, lines 36-52).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (703) 306-0472. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

HOAN C. NGUYEN
Examiner
Art Unit 2871

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April 24, 2003

✓
TOANTON
PRIMARY EXAMINER